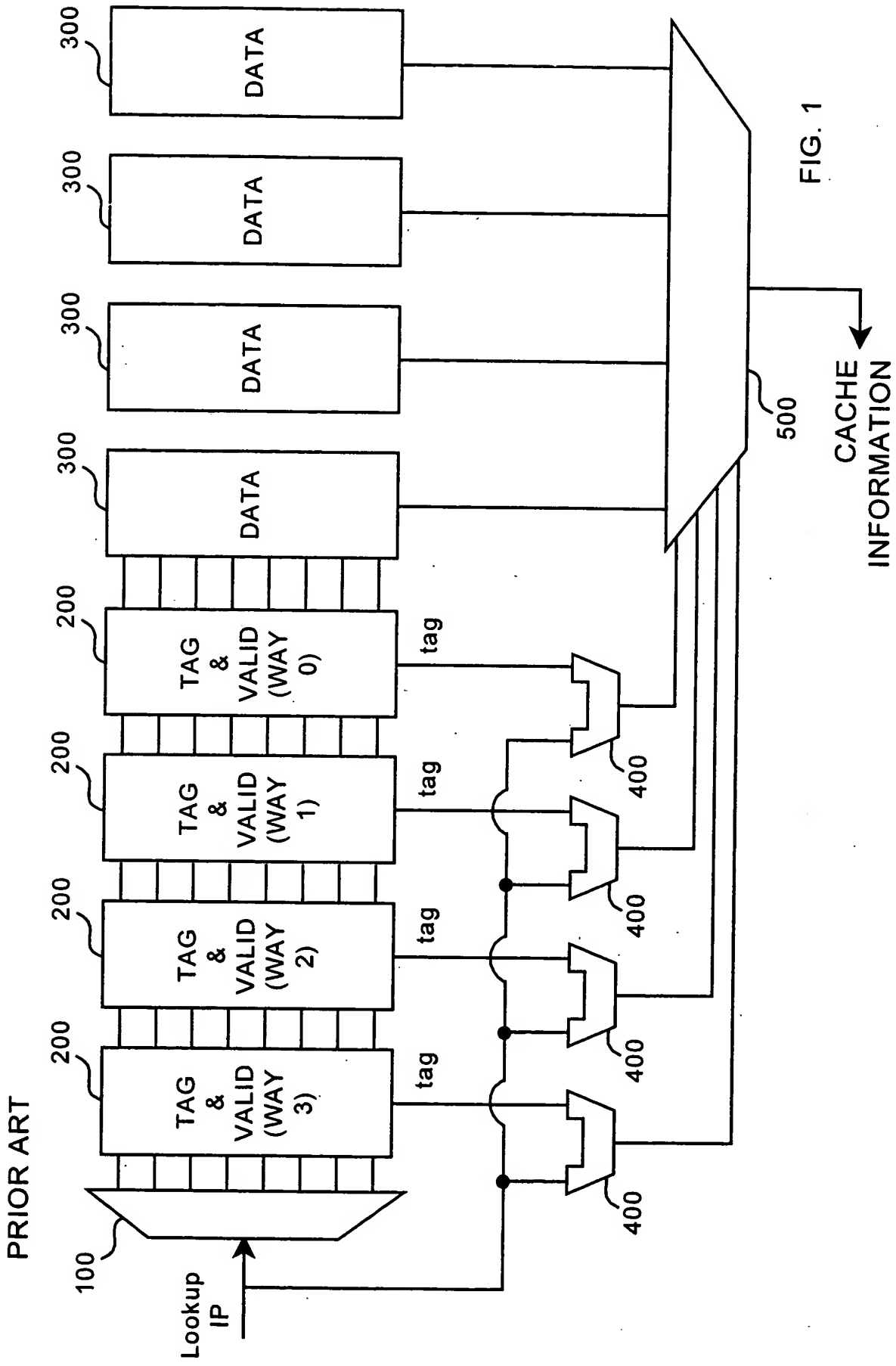
PRIOR ART
Lookup IP
100
TAG & VALID (WAY 3)
TAG & VALID (WAY 2)
TAG & VALID (WAY 1)
TAG & VALID (WAY 0)
200
tag
400
DATA
300
500
CACHE INFORMATION

FIG. 1

PRIOR ART

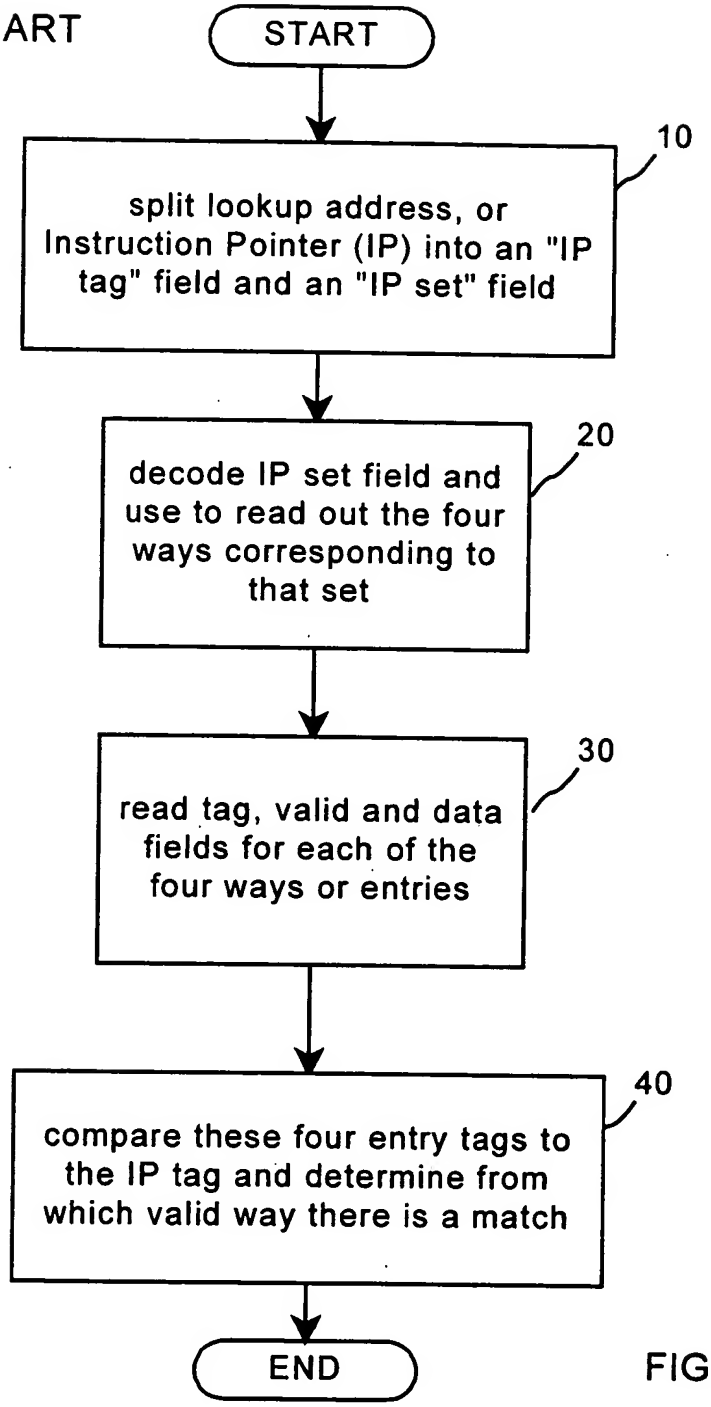

FIG. 2

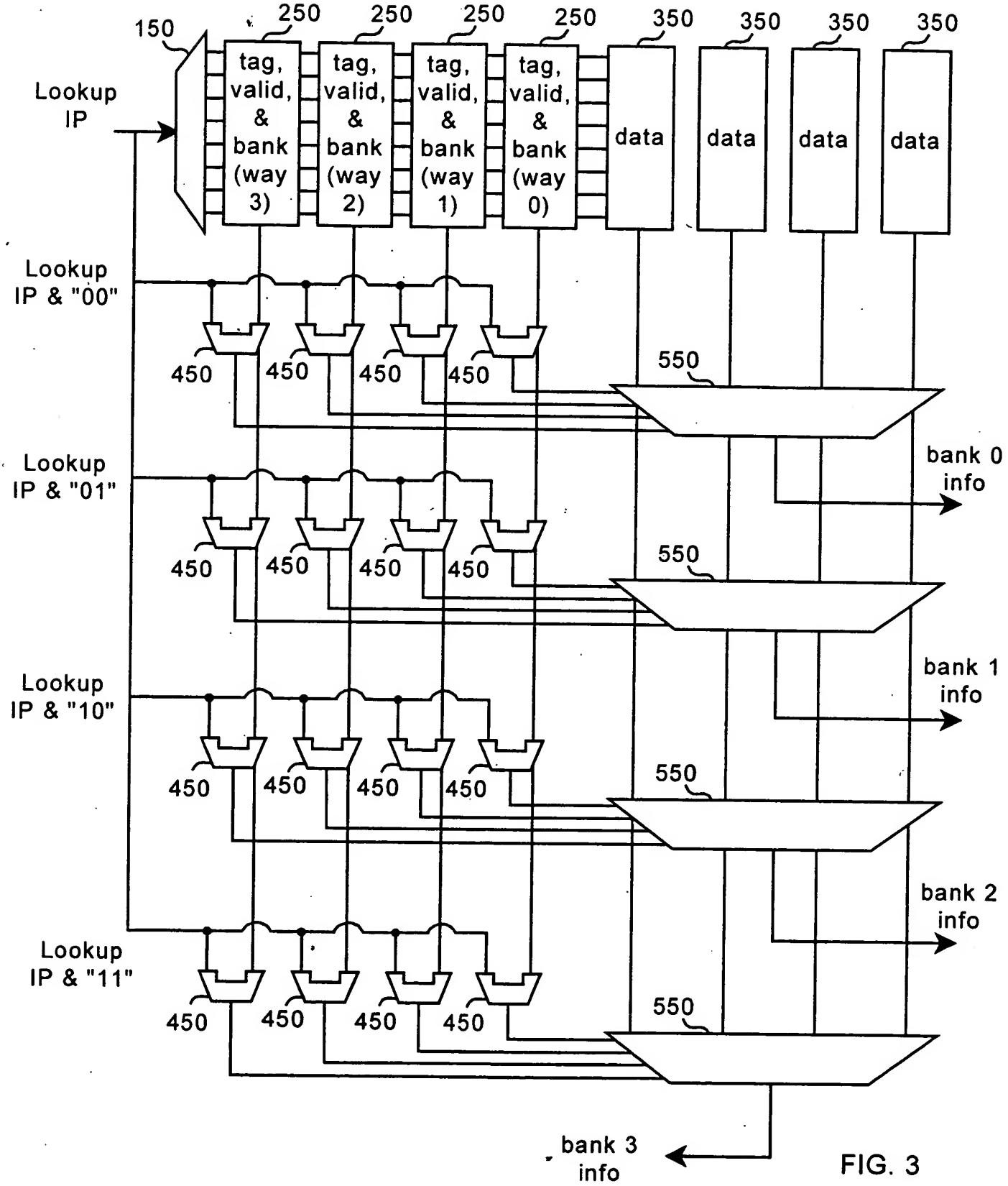
150
250
250
250
250
350
350
350
350
Lookup IP
tag, valid, & bank (way 3)
tag, valid, & bank (way 2)
tag, valid, & bank (way 1)
tag, valid, & bank (way 0)
data
data
data
data
Lookup IP & "00"
Lookup IP & "01"
Lookup IP & "10"
Lookup IP & "11"
450
550
bank 0 info
bank 1 info
bank 2 info
bank 3 info

FIG. 3

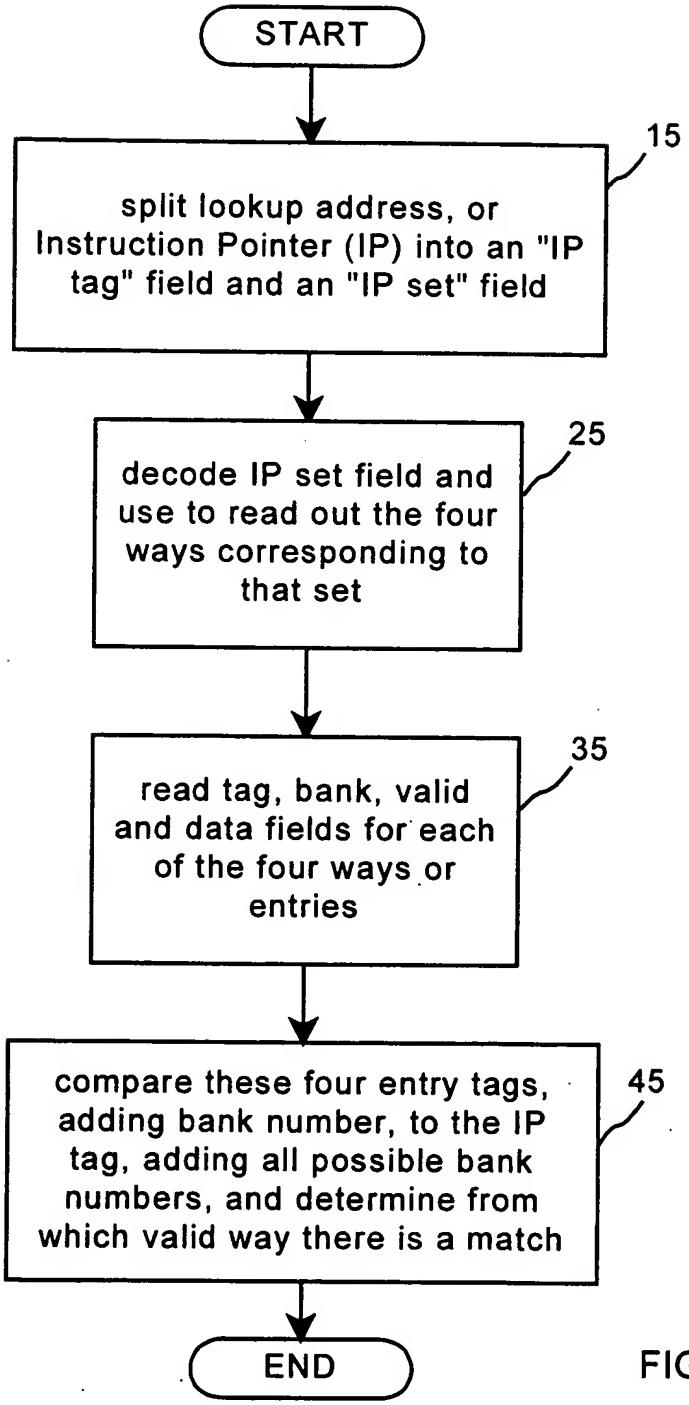
START
15
split lookup address, or Instruction Pointer (IP) into an "IP tag" field and an "IP set" field
25
decode IP set field and use to read out the four ways corresponding to that set
35
read tag, bank, valid and data fields for each of the four ways or entries
45
compare these four entry tags, adding bank number, to the IP tag, adding all possible bank numbers, and determine from which valid way there is a match
END

FIG. 4

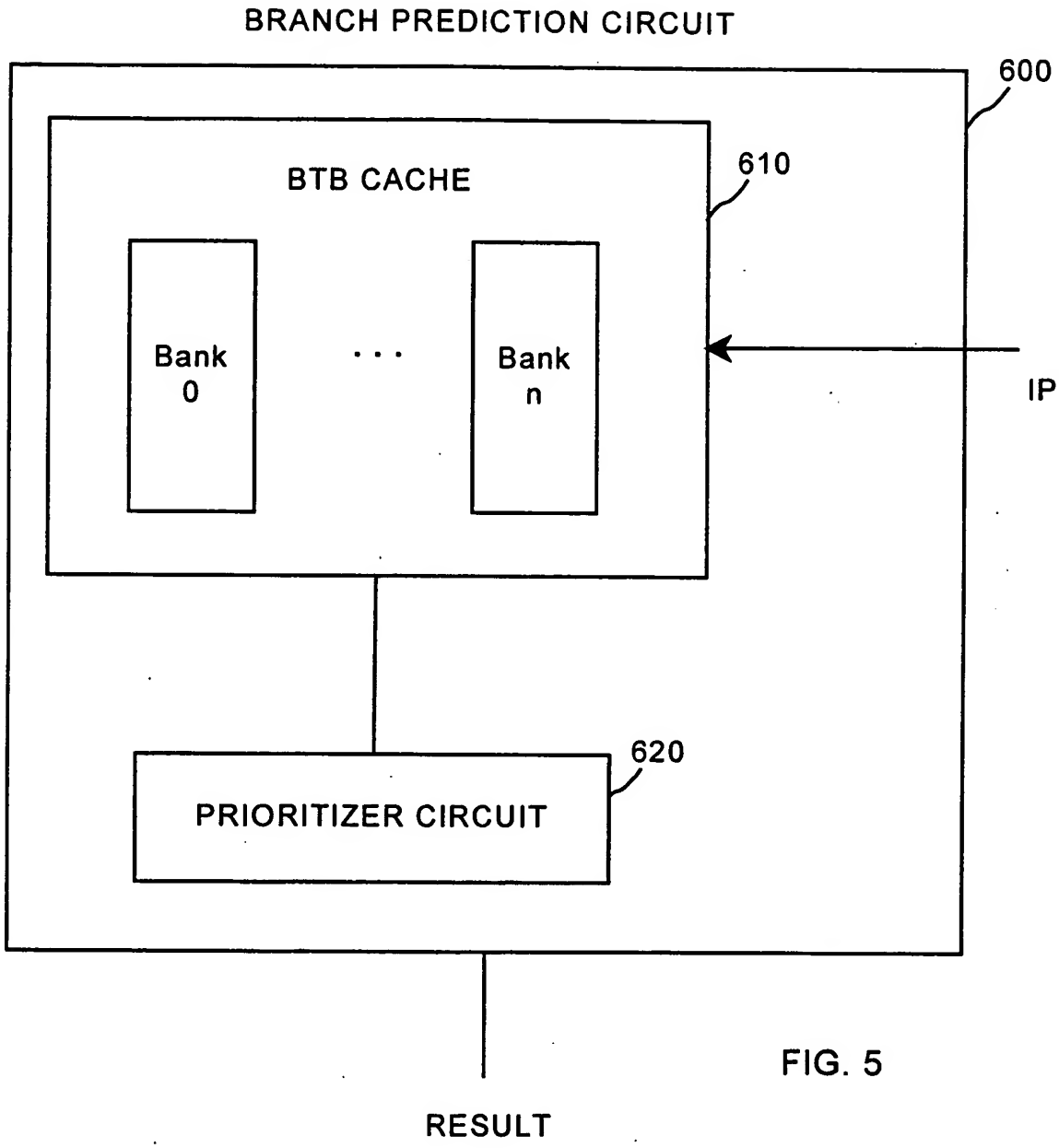
BRANCH PREDICTION CIRCUIT
600
BTB CACHE
610
Bank 0
. . .
Bank n
IP
620
PRIORITIZER CIRCUIT
RESULT

FIG. 5